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A recent study of the corresponding series of beds in the Paris and Hempstead basins leads Mr. A. Blytt to think that the attenuation of strata was effected by a general cause, and it seems highly probable that this cause is the precession of the equinoxes.

In the Proc. N. Y. Microscopical Soc., 1890, is found a synopsis of the Cretaceous Foraminifera of New Jersey, compiled by Anthony Woodward. The object of this paper is to bring together all the work that has been previously done, and the observations that have been made on the Cretaceous Foraminifera of New Jersey from 1833 to 1889.

Joseph Moore (*Jour. Cin. Soc. Nat. His.*, April, 1890) describes the tooth of a gigantic rodent found in northern Georgia. Its striking feature is the peculiar ribbing and flutting of the enamel throughout the length of the tooth. He proposes the name *Castoroides georgienis.* After an examination of the specimen, Prof. Cope states that it is the inferior canine of the *Hippopotamus amphibius.*

MINERALOGY AND PETROGRAPHY.[1]

Petrographical News.—A suite of rocks collected in Madagascar by Rev. R. Baron[2] has been examined by Hatch,[3] who separates them into gneisses, granitite, olivine-norite, pyroxene-granulites, pyroxenites, and basalts. In the olivine-norite the plagioclase is perfectly transparent, and has an undulous extinction. The olivine is surrounded by a reactionary rim consisting of an inner zone of hypersthene and an outer one of actinolite. The pyroxene-granulite is evidently a basic eruptive that has suffered dynamo-metamorphism. It contains pyroxene, hornblende, and garnet, besides the usual constituents of granulite. Among the basalts many varieties are described. In one variety, the augite and olivine, when present, are in porphyritic crystals, slightly corroded, and including portions of the microlitic ground mass. The augite is grouped around the olivine, which is twinned. A few grains of quartz are present. A second variety contains hornblende and biotite porphyritically developed. All the augite of this rock is zonal, with a different extinction in the various zones. In some the hour-glass structure was observed. Twinning is frequent. A glassy basalt includes hornblende crystals and fragments of quartz. Some of the hornblende has been entirely dissolved, and in its place has been formed an aggregate of augite and magnetite.

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[1] Edited by Dr. W. S. Bayley, Colby University, Waterville, Me.

[2] *Quart. Jour. Geol. Soc.*, XLV., May, 1889, p. 305.

The quartz fragments are surrounded by zones of colorless glass containing augite microlites, which are in turn surrounded by zones of brown glass enclosing microlites and crystals of augite and granules of magnetite.——According to Vénukoff,[4] basalts play an important role in the geology of Mongolia. They consist principally of feldspar, augite, olivine, ilmenite, and magnetite. The feldspar is usually in but one generation. When in two, the phenocrysts are anorthite and the microlites labradorite. The augite is usually in two generations, the larger crystals being violet in color, while the smaller ones are green. In some cases the porphyritic augites are made up of an aggregate of small grains grouped in such a way as to present the outline of crystals. These aggregates are sometimes surrounded by a rim of grains of the second consolidation. Between the minerals above mentioned there is often a little of an amorphous base containing globulites and microlites. The quartz of an inclusion of granite in this basalt is surrounded by a zone composed of augite and small, light-colored microlites. The biotite of the granite has been transformed into a granular mass of magnetite, quartz, and a light brown opaque substance. Around it is often a zone of augite grains. Around the feldspar the basalt paste becomes light colored, the crystal components are more rare, and in their places are various microlites. Within this is a band of augite microlites, and within this band, immediately surrounding the feldspar, is a zone of colorless glass. The feldspar itself is much fractured.——The greenstones[5] of Wicklow, Ireland, occur in intrusive sheets and dykes. They are quartz-mica-diorites (composed of quartz, plagioclase, orthoclase, biotite, hornblende, and a little malacolite, chlorite, and apatite), quartz-diorites, diorites, augite-diorites (consisting of plagioclase and grains and crystals of sahlite or malacolite), diabases, epidiorites, chlorite-schists (produced by dynamic metamorphism from diabase), and serpentines, derived from diabases.——Mr. Somervail[6] regards the gabbros, greenstones, granulites, and hornblende-schists of the Lizard, Eng., as parts of the same rock-mass, the latter-named rocks, according to him, having originated from the former by pressure.——Mr. Marstens[7] gives us a very brief description of diabases and diabase porphyrite from among the Triassic traps of Nova Scotia.——A few dykes[8]

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[3] Ib., p. 340.

[4] Proc. verb. soc. Bélg. de Géol., II., 1888, p. 441.

[5] *Geol. Magazine*, 1889, p. 261.

[6] *Geol. Magazine*, Sept. 1889, p.

[7] *Amer. Geol.*, Mch. 1890, p. 140.

[8] Darton and Diller. *Amer. Jour. Sci.*, Apr. 1890, p. 269.

occurring in the Upper Silurian and Lower Devonian beds of the Appalachians in Highland Co., Va., consist of porphyritic basalt composed of phenocrysts of augite and olivine in a ground-mass of plagioclase, augite, magnetite, and a few flakes of biotite.——Sandberger[9] mentions cordierite occurring as an inclusion in the basalt of the Calvarienberg, near Fulda, in Hessen. He also gives an analysis of the phonolite of Heldburg, near Coburg.——Holland[10] has isolated the porphyritic crystals from the basalts of Mull, Eng., and finds them to correspond in composition and other properties with anorthite of the composition $AbAn_3$.——In the phonolite of the Serra de Tingua, Brazil, are coarse-grained patches with the structure of foyaite. They have the form of leucite crystals, and are, according to Hussak,[11] nothing more or less than pseudo-crystals of this mineral. They consist of a thin wall composed of crystals of orthoclase, surrounding a coarse-grained aggregate of the constitution of foyaite. The external form of the pseudomorphs is so perfect that the angles of leucite can readily be detected upon them.——Mr. C. W. Hall[12] records the fact that the Trenton limestone of St. Paul and Minneapolis., Minn, is composed of untwinned rhombohedra of calcite. An argillaceous bed lying above the limestone contains many rhombohedra of calcite imbedded in its matrix.——Dr. Lawson[13] describes an amygdaloidal trap from the Animikie series of Thunder Bay, Canada, that contains about 2% of native copper.

Mineralogical News.—NEW MINERALS.—*Inesite.*—At the mine Hilfe Gottes and Ferdinand, near Nanzenbach in the Dillenburg region, Germany, is a new manganese mineral associated with various ores of this metal. The new mineral is a dense colorless to dark brown substance, whose hardness varies between 5 and 6, and whose streak is yellowish-brown. Its fusibility is 3. In other specimens the mineral occurs in radial aggregates of a flesh-red color, with a hardness of 6–7, a specific gravity of 3.103, a white streak and a glassy lustre. It has an extinction of 20° against one of its cleavages, and is regarded by Schneider[14] as triclinic. Its composition is

SiO_2	Al_2O_3	FeO	MnO	MgO	CaO	H_2O
43.92	.29	.69	38.23	.28	8.00	8.49

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[9] *Neues Jahrb. f. Min.*, etc., 1890, I., p. 101.

[10] *Miner. Magazine*, Mch. 1889, p. 154.

[11] *Neues Jahrb. f. Min.*, etc., 1890, I., p. 166.

[12] Bull. Minn. Acad. Nat. Sciences, Vol. III., No. 1., p. 111.

[13] *Amer. Geologist*, Mch. 1890, p. 174.

[14] *Zeits d. deutsch. geol. Ges.*, XXXIX., 1889, p. 829.

In many of its characteristics it resembles rhodotilite. Its axial ratio, as calculated by Scheibe,[15] is $a : b : c = .9753 : 1 : 1.3208$, with $\alpha = 92^\circ\ 18'\ 12''$, $\beta = 132^\circ\ 55'\ 54''$, $\gamma = 93^\circ\ 50'\ 42''$.——*Rhodotilite* is described by Flink[16] from the Harstig mine, Pajsberg, Sweden. It is identical in all its properties with inesite, but is fresher. Its analysis gave :

SiO_2	FeO	MnO	MgO	CaO	PbO	H_2O
43.67	1.11	37.04	.15	9.38	.77	7.17

which corresponds with the formula $2\,(MnCa)\,SiO_3 + H_2O$. Recognizing the similarity between *rhodotilite* and the mineral described by Schneider under the name *inesite*, Flink has determined to withdraw the former name and has decided to adopt the one proposed by Schneider.——*Lussatite* is described by Mallard[17] as a milky-white fibrous substance surrounding quartz crystals, occurring in the bituminous beds of Lussa, Pont-du-Chateau, France. The fibres are arranged perpendicularly to the bounding planes of the quartz. They have a density of 2.04, and contain 7.9–8.3% of water, which they lose when heated without changing their optical behavior. The loss of water is supposed to be due to a mixture of opal with the fibrous mineral, which the author regards as crystallized silica differing from quartz and chalcedony, since it possesses optical properties that differ from those of these minerals. Its index of refraction for sodium light is 1.446.——*Heliophyllite,* from Pajsberg is a shining, sulphur-yellow, flaky substance[18] accoompanying the *inesite* (rhodotilite) from the Harstig mine. It resembles, in appearance, a mineral described by Nordenskjöld[19] as associated with *ekdemite* at Långban. The new mineral is orthorhombic, with the plane of its optical axes normal to the cleavage face. The axial angle is large, and the dispersion $\rho > v$. The density is 6.886, and hardness 2. On the Långban mineral the planes $P\breve{\infty}$ and oP occur on twinned forms, with ∞P the twinning plane, and $a : b : c = 1.0343 : 1 : 2.2045$. Heliophyllite has practically the same composition as *ekdemite,* from which, however, it differs in its crystallographic properties.

	PbO	MnO. FeO	As_2O_3	Cl
Heliophyllite	80.70	.54	11.69	8.00
Ekdemite	81.28		12.03	8.63

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[15] Ref. *Neues Jahrb. f. Min.*, etc., 1890, I., p. 21.

[16] Öfv. af. Kongl. Vetensk. Ak., För. 1888, Stockholm, p. 571. ref. *Neues Jahrb. f. Min.*, etc., 1890, I., p. 22.

[17] Comptes Rendus, 110, p. 245. Ref. Ber. d. deutsch. chem. Ges., 1890, p. 170.

[18] Flink : Öfversigh. af. Kongl. Vetensk. Akad. Förh., 1888, Stockh., p. 571.

[19] Geol. Fören. Förh., III., p. 381. Ref. *Neues. Jahrb f. Min.*, etc., 1890, I., p. 23.

——*Barysite.*—At the same Harstig mine Sjögren and Lundström[20] have found a lead silicate associated with garnet, calcite, tephroite, hedyphane and cerussite filling a vein in the iron ores. The mineral occurs in silver-white hexagonal crystals, with a perfect cleavage parallel to oP, and a less perfect one parallel to ∞P. Its double refraction is negative, streak white, hardness, 3, and specific gravity, 6.55. When heated it becomes dark and melts to a brown glass. Dissolves in nitric and hydrochloric acids with the separation of gelatinous silica. Its composition (as a mean of two analyses) is:

SiO_2	PbO	MnO	FeO	CaO	MgO	Ce	Loss.
17.07	78.26	3.51	.16	.41	.59	tr.	.89

leading to the formula $3\ (\frac{1}{6}\ MnO+\frac{5}{6}\ PbO)\ 2\ SiO_2$.

Miscellaneous.—The second part Hintze's "Handbuch der Mineralogie"[21] concludes the discussion of the topaz group of minerals, and treats of the datholite and epidote groups, vesuvianite, gehlenite, and parts of the tourmaline group. The fullness of treatment that characterized the first part of this remarkable book is continued in the second part. If the promise given by the two parts that have appeared to date is carried to its fulfillment, the complete volume will be a marvel of painstaking labor and patience.——A discussion of some of the facts known with respect to the physical symmetry of crystals, together with some observations made upon the gypsum of Zimmerscheim, in Upper Alsace, lead Beckenkamp[22] to the view that the molecules of crystals are polar, *i.e.*, that they possess different powers at diametrically opposite points, and that, other conditions being similar, a crystal face always possesses a maximum tendency to growth in a certain fixed direction.——In a conglomerate on the Coast of South Devon, near Torquay, England, are numerous pieces of limestone, on the surface of which are botryoidal and spherulitic forms of chalcedony, known as beekite. These are thought by Hughes[23] to have originated by the replacement of portions of the limestone by silica, possibly through the influence of organic substances. The author thinks that the same kind of action may have given rise to many of the old siliceous deposits like flint or chert ——Mr. Dawson[24] has recently given a statement of the present condition of mining in British Columbia, and a description of the minerals of economic value occurring there, and Mr. Coste[24] has issued a statistical report on the mineral products of Canada.——In the tourmaline of the tourmaline granite of Striegau, Traube[25] has discovered pleochroic halos around inclusions of rutile and zircon. The color of the halos is some shade of violet, and is independent of the color of the mineral in which they lie. It disappeares upon heating. Garnet, apatite, and quartz inclusions in the same tourmaline are not surrounded by halos.——Among the new instruments, and improvements upon old instruments, used in crystallographic and mineralogical investigations, that have been suggested during the last three months, mention may be made of an apparatus[26] for the production of pressure figures in very small mica plates; of a very simple reflection goniometer constructed by Prof. Groth[27]; of an improved instrument[28] for cutting thin sections of minerals in any desired position; and an improved heating apparatus for use with the reflection goniometer, invented and constructed by the well-known mechanician Fuess.[29]

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[20] Öfvers. af. Kongl. Vetensk. Ak. Förh., p. 7. Ref. *Neues. Jahrb. f. Min.*, etc., 1890, I., p. 24.

[21] Dr. C. Hintze: Handbuch der Mineralogie, 2d Lief. Leipzig. Veit and Comp., 1890.

[22] *Zeits. f. Kryst*, XVII., 1890, p. 321.

[23] *Miner. Magazine*, Oct., 1889, p. 265.

[24] Ann. Rep. Geol. and Nat. Hist. Surv. of Can. for 1887-88. Reps. R and S.

BOTANY.

Note on a New Species of Actinoceps B. and Br.—In the Sylloge Fungorum of Saccardo but a single species of Actinoceps is recorded, and this is a native of Ceylon. Consequently it is interesting to discover that another form, undoubtedly belonging to the same peculiar genus of Hyalostilbeæ, occurs rarely in Minnesota. In April a number of moist chambers were prepared by Mr. E. P. Sheldon in the botanical laboratory of the University of Minnesota. In these chambers a large variety of nutritive substances were placed, and a number of more or less interesting saprophytic fungi have since developed.

The plant, referred to Actinoceps, developed upon the glandular side of a putrescent orange-peel, and formed a little colony of somewhat less than a square inch in extent. The surface of this area, upon examination, was found to be clothed with a thin layer of *Bacillus megaterium* De By., together with other saprogenic bacteria. From this thin layer of micro-organisms the Actinoceps plants arose in num-

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[25] *Neues Jahrb. f. Min.*, etc., 1890, I., p. 186.

[26] Steenstrup: Geol. Fören. Förh., Stock., 1888, p. 113. Ref. *Zeits. f. Kryst.*, XVII., p. 429.

[27] *Zeits. f. Kryst.*, XVII., 1890, p. 396.

[28] Ib. XVII., 1890, p. 445.

[29] *Neues Jahrb. f. Min.*, etc., 1890, I., p. 161.